

EUDAIMONIC BEHAVIORS, LEISURE ACTIVITY AND WELL-BEING OF
OLDER ADULTS WITHIN THE CONTEXT OF DAILY LIFE

A Dissertation

by

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ABSTRACT

This study explored the relations between participation in different types of daily activities (leisure activity and eudaimonic behaviors), select dispositions (neuroticism, dispositional depression, and physical activity level), and select measures of in-situ well-being among older adults. In-situ well-being was indicated by three transitory emotional and motivational states: situational depression, positive affect, and deep structured experience. Nineteen participants ranging in age from 59 to 81 years ($M = 68.68$, $SD = 7.17$) were recruited from a southwestern city in the United States. Each participant was signaled on five randomly selected occasions each day for seven consecutive days. Upon receiving a signal, participants completed questionnaires measuring their activity participation and their in-situ well-being at the time of the signal. A total of 638 useable responses were obtained. Data were analyzed through multilevel modeling. Significant predictors of situational depression included leisure activity participation (inverse relation), neuroticism, and physical activity level (inverse relation). For positive affect, leisure activity (inverse relation), eudaimonic behaviors (friendship activity, moral behavior, self-relevant activity), and dispositional depression (inverse relation) were significant. For deep structured experience, leisure activity and eudaimonic behaviors (intellectual activity, self-relevant activity) were significant. These findings suggest that active leisure participation and engaging in eudaimonic behaviors can promote in-situ well-being of older adults.

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CHAPTER I

INTRODUCTION

A significant body of literature has shown that participation in leisure activities is positively associated with the general well-being of older adults. In addition, participation in social activities has been shown to enhance the happiness, life satisfaction, and general well-being of older adults (Adams, Leibbrandt, & Moon, 2011; Simone & Haas, 2013). Physical forms of leisure activity also promote general well-being among older adults. Participation in exercise training programs and regular physical activity has been shown to alleviate depression among men and women who are elderly (Chodzko-Zajko et al., 2009; Sayyadi, Nazer, Ansary, & Khleghi, 2006, Teixeira et al., 2016). Generally, a habit of involvement in social and physical leisure activities has been consistently shown to be an instrumental health and well-being promoter among members of an aging population (Paganini-Hill, Kawas, & Corrada, 2011).

In addition to physical and social activities, participation in cultural and volunteer activities have been positively associated with the well-being of older adults (Nummela, Sulander, Rahkonen, & Uutela, 2008; Van Willigen, 2000). Indoor as well as outdoor activities have also contributed to the well-being of older adults (Lomranz, Bergman, Eyal, & Shmotkin, 1988; Nimrod, 2007). Nummela and his colleagues (2008) found that going to art exhibitions, movies, the theatre, and concerts contributed to improved self-rated health among elderly women and Van Willigen (2000) demonstrated that volunteering was positively associated with the life satisfaction of

older adults. Lomranz and his colleagues (1988) found that participation in outdoor activities was positively related to the well-being of aged women and men and Nimrod (2007) demonstrated that engagement in independent home activities, such as listening to music at home and participating in hobbies, significantly contributed to the life satisfaction of older adults.

Two different approaches have been taken in regard to studying the relationship between leisure participation and well-being. The ‘hedonic view’ equates well-being with immediate pleasure or happiness (Ryan & Deci, 2001). Psychologists who approach inquiry from the perspective of the hedonic view emphasize the broad concept of hedonism, which indicates not only the preference and pleasures of the body, but also those of the mind (Kubovy, 1999). Outcome variables in studies reflecting the hedonic view include life satisfaction, positive affect, and situational happiness (Diener, 1984; Diener, Inglehart, & Tay, 2013; Diener, Oishi, & Lucas, 2003). Subjective well-being is generally used to evaluate hedonic pleasure in the human experience (Diener & Lucas, 1999).

The other approach is the Eudaimonic approach. Eudaimonia refers to living well or actualizing one’s fullest potential (Ryan & Deci, 2001) and pursuing the greater good (Huta & Ryan, 2010). That is, Eudaimonia is conceived of as a way of living rather than a mental state (e.g., positive feelings) or a cognitive evaluation of satisfaction (Ryan, Huta, & Deci, 2008). Examples of Eudaimonia include acting to the best of one’s capability; striving toward excellence through developing one’s unique potential; and exercising virtues, such as gratitude or kindness. A number of studies have

explored the eudaimonic view of well-being and its contributions to psychological and physical functioning (e.g., McMahan & Estes, 2011; Ryan et al., 2008). McMahan and Estes, for example, demonstrated that the eudaimonic dimensions of the conceptions of well-being are more related to general well-being than the hedonic dimensions.

Consistent with the Eudaimonia perspective, a number of philosophers, visionaries, and religious masters have argued that immediate happiness should not be the main criterion for assessing well-being (Ryan & Deci, 2001). Aristotle, for example, postulated that true happiness is found in doing worthwhile things that, collectively and over time, accumulate to result in a life well-lived, or Eudaimonia (Deci & Ryan, 2008; Delle Fave, Brdar, Freire, Vella-Brodrick, & Wissing, 2011; Waterman, 1993).

Six distinct dimensions of human actualization comprise the eudaimonic view of well-being, which is called psychological well-being (Ryff & Keyes, 1995). From that perspective, well-being is defined as having a sense of purpose and meaning in life, realizing one's potential, engaging fully in life, experiencing spirituality, maintaining positive friendships (i.e., intimate relations) with others, and having mastery over one's environment. Ryan and colleagues (2008) have pointed out that psychological well-being can appropriately be considered an outcome of eudaimonic behavior, but is not a measure of the behaviors that comprise Eudaimonia.

Little research has explored the association between eudaimonic behaviors and well-being. Steger, Kashdan, and Oishi (2008) conducted two diary studies on the relationship. The results showed that participation in eudaimonic behaviors was related

to general well-being and that the relationship was stronger than the relationship between hedonic behaviors and general well-being. The research did not, however, investigate in-situ well-being or evaluate immediate eudaimonic behaviors, such as activity that is directed at developing, sustaining, or celebrating a friendship. In addition, the relation between the immediate eudaimonic behaviors of older adults and in-situ well-being has not previously been explored. Therefore, the current study examines relationship between leisure activity, immediate eudaimonic behaviors, select dispositions (i.e., depression, neuroticism, and physical activity level), and in-situ well-being of older adults within the context of their daily lives.

Background

In-situ Well-being

In-situ well-being is defined as the immediate presence of a desirable state of emotion, motivation, and attention. Three concepts are indicators of in-situ well-being: situational depression, positive affect, and deep structured experience. A summary of each of these indicators follows.

Depression is a significant barrier to personal growth and eudaimonic lifestyle. At extreme levels, depression is fully incapacitating and, at modest levels, significantly impairs functioning in daily life. Depression is, thus, among the most critical health problems that contemporary society faces (Chapman & Perry, 2008). According to the World Health Organization (2016), 7 % of the general older population suffers from unipolar depression and depressive symptoms magnify one's risk for mortality and morbidity (Blazer & Hybels, 2004; Fröjd, Håkansson, Karlsson, & Molarius, 2003).

Depression is also related to the decreased cognitive abilities of older adults, which, in turn, are generally accompanied by reduced social and physical activities (Fiske, Wetherell, & Gatz, 2009).

A number of older adults lose their capability to live independently due to the limited mobility, frailty, chronic pain, or other mental or physical problems, and so gain a need for certain forms of long-range care. Additionally, older adults are likely to be faced with negative events, such as a decrease in socioeconomic status caused by retirement, bereavement, or a disability. These factors can cause loneliness, psychological suffering, isolation, and a loss of independence in advanced age.

Positive affect has been shown to be highly related to individuals' general well-being. Lyubomirsky, King, and Diener (2005) showed that positive affect may lead to a number of desirable resources, characteristics, and success related to happiness, while Pressman and Cohen (2005) found that positive affect contributes to increased longevity among community-dwelling older adults. In addition, Ostir, Ottenbacher, and Markides (2004) demonstrated a protective role of positive affect in the physical and functional decline which is related to frailty in later life. With regard to the determinants of positive affect, engagement in leisure activity (e.g., listening to music or participating in social activity) has been found to be one of the key contributors related to positive affect for older adults (Huxhold, Miche, & Schüz, 2014; Laukka, 2007).

Deep structured experience (Ellis, Freeman, Jamal, & Jiang, in press), meanwhile, is defined as a transitory state of intense attention and motivation, based on the integration of the concepts of deep play (Ackerman, 1999), flow (Csikszentmihalyi,

1975), and fast-thinking (Kahneman, 2011). Intrinsic motivation is not only an indicator of eudaimonic activity (Waterman, 1993), but also one of the key determinants of deep structured experience. Given the common element (i.e., intrinsic motivation) to both eudaimonic activity and deep structured experience, it is reasonable to propose that participation in eudaimonic behaviors may increase the prevalence of the deep structured experience. Consistent with this proposition, Waterman (1993) noted a relationship between eudaimonic behaviors and a heightened state of consciousness, which he called ‘personal expressiveness.’

Determinants of In-situ Well-being

In addition to the possible links between eudaimonic behaviors and deep structured experience, extensive research has indicated that leisure activity and select dispositions may promote in-situ well-being. Regular physical activity can decrease the depression of older adults (Nelson et al., 2007). Several studies have shown a significant relationship between physical activity and depression in that more active people have lower levels of depression (e.g., Chodzko-Zajko et al., 2009; Roshanaei-Moghaddam, Katon, & Russo, 2009; Teixeira et al., 2016). Some studies have shown that physical activity can be an effective treatment for depression (e.g., Mata et al., 2012).

Physical activity also has benefits to other dimensions of mental health, such as reducing anxiety and dementia (Brosse, Sheets, Lett, & Blumenthal, 2002; Doody et al., 2001), and can prevent or delay the onset of cognitive impairments that may occur with aging (Abbott et al., 2004; Larson et al., 2006; Weuve et al., 2004). Numerous clinical studies have also shown that physical activity reduces the risk of hypertension, obesity,

type 2 diabetes, osteoporosis, osteoarthritis, and coronary heart disease (e.g., Fletcher et al., 2001; Going et al., 2003; Sawka et al., 2007; US Preventive Services Task Force, 2003). In brief, involvement in physical activity is an evidence-based therapeutic intervention for older adults' physical and mental health.

Little focus, however, has been placed on exploring the relationship between physical activity and situational depression. Situational depression refers to a depressive experience that is a response to recent psychosocial stress and is likely to respond to social interventions or psychotherapeutic (Hirschfeld, 1981). In other words, situational depression indicates a short-term form of depression arising in the aftermath of diverse traumatic and demanding changes in an individual's normal life, such as retirement, divorce, or the death of a relative or close friend ("What is Situational Depression?," n.d.). These examples of negative external situations are more likely to occur in the older population. Thus, the current study is expected to clarify the relationship between physical activity and situational depression in older adults.

Personality has been shown to be significantly linked to well-being in older adults. Neuroticism, in particular, is related to depression in older adults (e.g., Monopoli, Vaccaro, Christmann, & Badgett, 2000; Wijngaards-de Meij et al., 2007), and is one of the 'Big Five' personality traits (Gosling, Rentfrow, & Swann, 2003). People with high levels of neuroticism tend to experience unpleasant emotions easily (Griffin & Moorhead, 2011). Unpleasant emotions, such as sadness and distress, are central elements of depression. It is reasonable, then, to assume that older adults who have lower neuroticism are more likely to experience situational depression.

In addition to the relationship between neuroticism and depression, neuroticism has been found to be positively associated with negative affect as well as inversely related to positive affect (Ng, 2009). Ng (2009) also examined the relationship between momentary emotions (positive and negative) and neuroticism; however, the results only showed a significant and positive relationship between neuroticism and momentary negative emotions. In the current study, thus, the possible relationship between momentary positive affect and neuroticism is examined.

Purpose and Research Questions

The purpose of this study is to investigate the relationship between in-situ participation in different types of daily activities (i.e., leisure and eudaimonic activities), select dispositions (i.e., neuroticism, dispositional depression, and physical activity level), and indicators of in-situ well-being (i.e., situational depression, positive affect, and deep structured experience) among older adults. The research questions for this study are as follows:

RQ1. How is participation in different types of daily activities and select dispositions related to the situational depression of older adults?

RQ2. How is participation in different types of daily activities and select dispositions related to the positive affect of older adults?

RQ3. How is participation in different types of daily activities and select dispositions related to the deep structured experience of older adults?

These research questions are examined the comprehensive literature review (i.e., Chapter II), method section (i.e., Chapter III), results section (i.e., Chapter IV), and

discussion section (i.e., Chapter V).

Significance of the Study

This study will extend the body of knowledge with regard to the relationship among leisure activity, eudaimonic behaviors, and the well-being of older adults. It will also provide practical implications to the real world. First, this study is an initial exploration of the relationship between the in-situ eudaimonic behaviors and well-being of older adults. Thus, it will provide better insights into how situational eudaimonic behaviors contribute to increased well-being (e.g., reduced situational depression, elevated positive affect, intense attention, and motivation) in later life and will allow us to discern the importance of situational Eudaimonia in regard to promoting the well-being of older adults.

Second, employing an Experience Sampling Method (ESM) will allow this study to capture the physical context, social context, activities, thoughts, and feelings in a naturally occurring situation. In particular, the findings of the activities and feelings in this study will help us to better understand what types of leisure activities older adults usually do in their daily lives and to what extent they experience positive affect or have momentary depressed moods.

Third, the findings of this study will allow recreation professionals to encourage older adults to actively engage in daily leisure activities and eudaimonic behaviors as key components of well-being. Recreation practitioners at the community-level will be able to become well-informed about the importance of eudaimonic life to older adults and the effects of daily leisure participation on well-being. Professionals, then, may be

able to provide a variety of leisure and recreation programs to boost the older adults' eudaimonic lives as well as their active leisure participation.

CHAPTER II

LITERATURE REVIEW

This chapter includes a general discussion of the literature and research on Eudaimonia, leisure activity, select dispositions (i.e., dispositional depression, neuroticism, and physical activity), and the well-being of older adults in order to advance the main argument of the current study.

Aristotle's Concept of Eudaimonia

Eudaimonia derives from Aristotle's (1985) philosophy of happiness, as articulated in *Nichomachean Ethics*, which indicates that living a good life is based on maximizing one's ability to fulfill his or her potential. Aristotle distinguished between happiness as experiencing subjective pleasure (i.e., hedonic view) and living well (i.e., Eudaimonia). In other words, Eudaimonia represents a way of living, rather than a mental state (e.g., positive emotions) or cognitive evaluation (e.g., life satisfaction).

Eudaimonic life is based on actualizing one's best capability through active pursuits of virtues and excellences (Ryan & Deci, 2001). It has been suggested that expressing human excellences and virtues is considered intrinsically worthwhile. Aristotle also argued that the most eudaimonic life is a contemplative or reflective life that is uniquely expressed by a human with the highest intrinsic worth. In other words, true happiness comes from the expression of virtue that is what is worth desiring or what is worth having in life.

Eudaimonia was founded on volition and self-reflection. Seeking to pursue

virtues and human excellence is attributable to individuals' own volitions (i.e., it is actively and voluntarily selected). Waterman (1993) emphasized this characteristic with personal expressiveness. Thus, feelings of personal expressiveness and self-realization are closely related to Eudaimonia. Waterman (1993) asserted that intense experiences, which he referred to as self-expression experiences, indicate Eudaimonia:

Experiences of an activity as personally expressive occur when there is (a) an unusually intense involvement in an undertaking, (b) a feeling of special fit or meshing with an activity that is not characteristic of most daily tasks, (c) a feeling of intensely being alive, (d) a feeling of being complete or fulfilled while engaged in an activity, (e) an impression that this is what the person was meant to do, and (f) a feeling that this is who one really is...such experiences of personal expressiveness appear conceptually linked with the feelings associated with intrinsic motivation (Deci & Ryan, 1985), flow (Csikszentmihalyi, 1975, 1988), and peak experience (Maslow, 1964, 1968). (Waterman, 1993, p. 679)

That is, efforts to live in accordance with ones' true potential, including activities that are self-relevant, result in the condition of Eudaimonia.

Consistent with Waterman's (1993) Eudaimonia, Widmer, Ellis, and Trunnell (1996) proposed four domains of ethical behavior, derived from an interpretation of Aristoteles's *Nichomachean Ethics* philosophy, in leisure and recreation settings: intellectual activity, creative activity, meaningful relationships, and moral behavior. First, they considered that intellectual and creative activities are key elements of a good life. According to Adler (1991), "...activities by which human beings learn and grow and thereby acquire one or more of the intellectual virtues" (p. 83). In addition, building and maintaining friendships is one of the crucial parts of a good life. That is, "...friendship is a virtue or something with virtue, and besides, it is most necessary to life, for no one would choose to live without friends, though he were to have all other

goods” (Aristotle, 1986, p. 503). The last component of a good life is moral behavior, which is attributable to wise and prudent decisions in order to avoid wrong desires. Widmer, Ellis, and Munson (2003) considered these components important in real goods of the Aristotelian good life.

Previous research has demonstrated that the eudaimonic view of well-being is more likely to promote psychological functioning than the hedonic view of well-being. McMahan and Estes (2011), for example, showed that the eudaimonic dimensions of individual conceptions of well-being were more strongly associated with general well-being than hedonic dimensions among undergraduate students. This study was also replicated in non-student adults, which further supported the generalizability of the findings.

Peterson, Park, and Seligman (2005) explored associations among three orientations (i.e., pleasure, engagement, and meaning) related to happiness and life satisfaction. Their findings showed that each of the three orientations as related to happiness significantly contributed to life satisfaction, but the orientations related to engagement and meaning were more likely to relate to life satisfaction than orientation to pleasure. This study was extended and replicated later in a study conducted by Park, Peterson, and Ruch (2009) in which participants from 27 different nations were engaged. The findings were consistent with the previous study in that orientations to engagement and meaning were more likely to be associated with life satisfaction than orientation to pleasure.

In addition, Steger and colleagues (2008) examined whether the effects of

eudaimonic behaviors were stronger than the effects of hedonic behaviors on general well-being through two daily diary studies. The findings showed that eudaimonic behaviors rather than hedonic behaviors were more likely to relate to general well-being.

Psychological Well-being

Psychological well-being is considered one of the outcomes of an eudaimonic life (e.g., deep appreciation of life, physical health, subjective well-being) (Ryan et al., 2008). Ryff (1995) described well-being as striving for the perfect representation of and realizing one's true potential, rather than simply attaining pleasure. Ryff (1989) also developed a theoretical framework for psychological well-being that is comprised of the six distinct dimensions of wellness: personal growth, self-acceptance, positive relations with others, autonomy, environmental mastery, and purpose in life.

Personal growth is one of the principal components of positive psychological functioning (Ryff & Singer, 1998) and reflects an individual's ability to develop one's potential by growing and expanding as a person (Keyes, Shmotkin, & Ryff, 2002). Self-acceptance is defined as not only a characteristic of self-actualization, optimal functioning, and maturity, but, also, a central feature of mental health. Maintaining positive attitudes toward oneself is linked with a key characteristic of positive psychological functioning. Positive relations with others refer to having warm and trusting relationships with others as well as a capacity for strong intimacy, empathy, and affection. The ability to maintain positive relations is perceived as a key component of mental health (Ryff, 1989). Autonomy refers to self-determination and independence as well as evaluating oneself by personal standards. Environmental mastery indicates

one's sense of competence in managing the environment. Individuals with high environmental mastery are able to effectively use surrounding opportunities to create contexts suitable to one's values and needs (Ryff, 1995). From the early 1960s to recent years, scholars have demonstrated that individuals function best when they have a sense of purpose in life (Frankl, 1962, 2014; Steger, Oishi, & Kashdan 2009). Having a sense of direction, goals, and intentions makes individuals feel that life is meaningful (Ryff, 1995).

Big Five Personality Traits and General Well-being

Personality is defined as an individual's comparatively stable predisposition and patterns of feeling, thinking, and acting. The Big Five framework has obtained considerable support and become the most widely used and researched model of personality (John & Srivastava, 1999; McCrae & Costa, 1999). The Big Five dimensions of personality describe five traits that comparatively stable over time; orthogonal to each other; and, to a large extent, biologically based: extraversion, which evaluates positive affect, sociability, gregariousness, and excitement seeking; neuroticism (i.e., the opposite of emotional stability), which assesses instability, proneness to anxiety and depression, and emotional sensitivity; conscientiousness, which concerns being reliable, dutiful, ambitious, and self-disciplined; agreeableness, which focuses on modesty, empathy, tender-mindedness, and compassion; openness-to-experience, which evaluates a preference for new experiences, imaginativeness, and curiosity (Friedman, & Kern, 2014; John & Srivastava, 1999).

Neuroticism refers to the propensity to experience negative emotions and

distress, including anxiety, fear, anger, sadness, worry, dissatisfaction, loneliness, irritability, feelings of vulnerability, and decreased self-confidence (John, Robins, & Pervin, 2008). Ormel and colleagues (2013) documented that neuroticism is a risk factor for common mental disorders, while Saulsman and Page (2004) showed a positive relationship between emotional distress disorders and neuroticism. In a similar vein, Malouff, Thorsteinsson, and Schutte (2005) found a positive association between clinical disorders and neuroticism.

Individuals with high levels of neuroticism are vulnerable to stress, emotionally reactive (Jeronimus, Riese, Sanderman, & Ormel, 2014), and have a high likelihood of being susceptible to mental disorders, such as anxiety and depression (Kotov, Gamez, Schmidt, & Watson, 2010). The literature has reported that a high level of neuroticism is associated with a greater risk of death (Mroczek & Spiro, 2007; Wilson, Krueger, Gu, Bienias, de Leon, & Evans, 2005).

Emotional stability, which is the opposite of neuroticism, reflects an individual's ability to be balanced and stable. Individuals who have high emotional stability (i.e., low levels of neuroticism) are generally relaxed, calm, even-tempered, and able to handle stressful situations without being upset (Hough, Eaton, Dunnette, Kamp, & McCloy, 1990). Previous study has found that emotional stability is the strongest predictor of life satisfaction and happiness (DeNeve & Cooper, 1998). Consistent with DeNeve and Cooper's study (1998), Ng (2009) demonstrated that neuroticism was positively linked to negative affect as well as inversely linked to positive affect. Klumb (2004) also found that neuroticism was inversely related to positive affect among

community-dwelling older adults.

Extraversion is characterized as assertiveness, surgency from external situations, talkativeness, and great amounts of emotional expressiveness. High extraversion is often considered action-oriented, enthusiastic, and obtaining energy from external means, whereas low extraversion indicates a reserved and reflective personality (Laney, 2002; Toegel & Barsoux, 2012). Extraversion has received the most theoretical and empirical attention among the personality traits, and a number of studies have reported that extraversion is significantly associated with well-being (e.g., Rusting & Larsen, 1997). However, an argument exists that extraversion and emotional stability are generally correlated, which causes difficulties when attempting to determine the unique contribution of extraversion to well-being. Subsequent studies have revealed that emotional stability is the stronger predictor than extraversion in terms of subjective well-being (Vittersø, 2001) as well as overall happiness, life satisfaction, and self-esteem (Hills & Argyle, 2001).

Agreeableness indicates individual differences in overall concern for social harmony. While agreeable persons tend to be generous, considerate, helpful, trustworthy, and willing to compromise with the interests with others, disagreeable persons are mostly not concerned with others' well-being and are likely to be unfriendly, uncooperative, and suspicious (Rothmann & Coetzer, 2003). DeNeve and Cooper (1998) showed that agreeableness and extraversion are associated with positive affect.

Openness refers to a general appreciation for adventure, imagination, art, unusual ideas, emotion, curiosity, and various experiences. People with high levels of

openness are more likely to be creative, aware of their feelings, and willing to try new things. On the other hand, people who are not open to experiences tend to prefer the obvious, things that are plain, and straightforward experiences to ambiguous, complex, and subtle (McCrae & Costa, 1987).

Individual differences in personality shape how individuals develop social relationships, perform multiple tasks, and maintain their health (Caspi, Roberts, & Shiner, 2005). Extraverted and agreeable individuals are more likely to be socially competent (Asendorpf & Van Aken, 2003; Shiner, 2000) and conscientiousness, which are the most crucial predictors of educational accomplishment, occupational achievement, and subsequent job performance (Judge, Higgins, Thoresen, & Barrick, 1999).

Conscientiousness reflects a capability to maintain concentration, prevent impulsive behavior, and endeavor to get much better results (Caspi et al., 2005). Roberts, Lejuez, Krueger, Richards, and Hill (2014) revealed that constructs of conscientiousness indicate self-controlled, deliberative, and goal-directed behaviors, such as planning, orderliness, impulse control, the delay of gratification, and the disposition to follow social norms and rules. Studies have revealed that conscientiousness is regarded as a remarkable predictor of health across the life course (Reiss, Eccles, & Nielsen, 2014). For example, conscientiousness has been related to a lessened risk of a number of illnesses (Goodwin & Friedman, 2006) and health-related quality of life (Chapman, Duberstein, Sörensen, & Lyness, 2006). Greater levels of extraversion and conscientiousness have also been associated with a reduced risk of

disability in advanced age (Krueger, Wilson, Shah, Tang, & Bennett, 2006).

Meanwhile, longevity is one of the best measures of general health used worldwide (Friedman, & Kern, 2014). Previous studies that have explored the relationship between personality and longevity have suggested that individuals who are conscientious and emotionally positive are more likely to live longer (Danner, Snowdon, & Friesen, 2001; Friedman et al., 1995). Researches have shown that conscientiousness is negatively related to mortality (Kern & Friedman, 2011; Weiss & Costa, 2005; Wilson, de Leon, Bienias, Evans, & Bennett, 2004) and being conscientious, emotionally stable, and extraverted is associated with longevity (Terracciano, Löckenhoff, Zonderman, Ferrucci, & Costa, 2008).

Depression at an Advanced Age

Depression in later life is regarded as an instrumental public health problem. Numerous studies have demonstrated that depression in old age is related to an elevated risk of morbidity and suicide; increased self-neglect; and reduced cognitive, social, and physical functioning, which, in turn, leads to higher levels of mortality (Alexopoulos, 2005; Blazer, 2003; Fröjdth et al., 2003; Grek, 2007). The greater prevalence of depression is associated with a decreased overall quality of life in older adults (Charney et al., 2003) and poorer physical health (Brenes et al., 2008; Cockayne et al., 2011). However, late-life depressive symptoms are often underdiagnosed and undertreated since individual health care professionals often consider depression as a normal consequence of the many social and economic problems as well as physical illnesses of older adults (Lebowitz et al., 1997). Depression at an advanced age may also be less reported as

older individuals are less likely to report their symptoms (Lyness et al., 1995); therefore, an accurate diagnosis and treatment of depression can be one of the most salient parts to deal with the disorder (Tsoh et al., 2005).

Several risk factors exist for depression in older adults. Anxiety disorders can be one of the risk factors for late-life depression (Hettema, Kuhn, Prescott, & Kendler, 2006), while sleep disturbances (e.g., insomnia) are also considered risk factors for both the onset and persistence of depression among older adults (Fisket et al, 2009). For the psychological risk factors, an individual's personality traits, such as neuroticism, are strongly associated with depressive symptoms in old age. In addition, both ruminative and avoidant coping styles are related to depression in later life (Andrew & Dulin, 2007; Garnefski & Kraaij, 2006). Stressful life events in advanced age are also associated with depression (Fiske, Gatz, & Pedersen, 2003; Mojtabai & Olfson, 2004). For example, bereavement, financial difficulties, changes in living situations, interpersonal conflicts, and new physical illnesses or disabilities in one's self or a family member can cause depressive symptom in older adults.

Depression and Leisure Activity in Later Life

Physical Activity

Numerous studies have shown that physical activity is associated with depression in older adults. For example, Teixeira, Vasconcelos-Raposo, Fernandes, and Brustad (2013) found that physical activity is related to a lower incidence of depression and anxiety among the elderly, while Sguizzatto, Garcez-Leme, and Casimiro (2006) demonstrated that active older adults are less likely to be depressed than sedentary older

adults. Similarly, non-disabled older adults who participated in sports and/or recreational activities were at a lower risk for depression (Joshi et al., 2016). In an experimental study that investigated the effect of an aerobic physical exercise program on older adults (Antunes, Stella, Santos, Bueno, & Mello, 2005), the authors found that the group of older adults who participate in the program reported reduced scores of depression and anxiety as well as improved levels of life quality, whereas the control group had no changes.

Lindwall, Rennemark, Halling, Berglund, and Hassmén (2007) also found that inactive older adults had higher levels of depression scores than active elderly adults who engaged in both light and strenuous exercises. In a similar vein, Justino, Bertoldo, and Zarpellon (2009) demonstrated that participation in physical exercise programs was likely to reduce depressive symptoms and enhance functional fitness of older adults. According to Teixeira and colleagues (2016), a group of older adults who exercised was less likely to have depressive symptoms and dizziness.

Lampinen, Heikkinen, and Ruoppila (2000) conducted an eight-year follow-up study in regard to the predictive role of physical exercise related to depressive symptoms among older adults. Older adults who had reduced physical activity levels during the eight-year study period showed more depression at the follow-up than those older adults who kept active in or increased their physical exercise. Strawbridge, Deleger, Roberts, and Kaplan (2002) also demonstrated that greater physical activity is protective against not only prevalent depression but also immediate depression among older adults.

Other Types of Leisure Activity

Extensive studies have shown significant associations between different types of leisure engagement and depression in older adults. Fine (2001) documented that participation in leisure activities, such as hobbies, playing games (e.g., bingo or card games), and exercise, plays a role in decreased depression among older adults. Informal social activities significantly influence the reduction of depression over time as well as the onset of depression in older adults (Hong, Hasche, & Bowland, 2009), and gardening was inversely related to depression of older adults who are deaf (Werngren-Elgström, Brandt, & Iwarsson, 2006).

In addition, participating in informal activities (e.g., visiting with friends), formal activities (e.g., attending religious services or volunteering), and solitary activities (e.g., working in the garden or walking) have been shown to be inversely related to depression in older adults (Ritchey, Ritchey, & Dietz, 2001). Consistent with the study conducted by Ritchey and colleagues (2001), Janke, Payne, and Puymbroeck (2008) showed that frequent involvement in informal (e.g., talking on the phone with friends) and formal leisure activities (e.g., attending religious services, clubs, or organizations) is significantly associated with fewer depressive symptoms.

According to Musick and Wilson (2003), engaging in volunteer activities has been shown to decrease depression and volunteering for religious causes has been found to be more effective for reducing depression than volunteering for secular causes among older adults. In an eight-year longitudinal study presented by Lampinen, Heikkinen, Kauppinen, and Heikkinen (2006), leisure activities (e.g., reading, handicrafts, art, and

religious activities) were linked to higher mental well-being at the baseline, and indirectly contributed to greater mental well-being at the follow-up among older adults.

Depression and Neuroticism in Later Life

Neuroticism has been regarded as one of the personality traits most relevant to psychopathology, such as depression and anxiety (Ormel, Rosmalen, & Farmer, 2004). A high level of neuroticism has been strongly associated with depression in later life (Fiske et al., 2009). Monopoli and his colleagues (2000) examined the association among depression and the 16 personality traits and discovered that neuroticism and anxiety were related to depression in older adults. Additionally, neuroticism was shown to be an instrumental and consistent predictor of the onset of depressive symptoms at an advanced age (Steunenberg, Beekman, Deeg, & Kerkhof, 2006), while, a high degree of neuroticism were likely to increase one's risk for depression even without a stressful life event (Ormel, Oldehinkel, & Brilman, 2001). In a longitudinal study conducted by Jorm and his colleagues (2000), neuroticism was a predictor of anxiety and depression among individuals aged 70 and older.

Meanwhile, high levels of neuroticism have been shown to predict poor outcomes following bereavement in later life (Galatzer-Levy & Bonanno, 2012). Bereavement appeared to be one of the most noticeable and consistent risk factors for depression in older adults (Cole & Dendukuri, 2003). Wijngaards-de Meij and her colleagues (2007) found that neuroticism, which is related to adjustment during bereavement, contributed to depression in older adults. Jeronimus and colleagues (2014) also showed that neuroticism consistently led to negative experiences, long-term

difficulties, and decreased life quality.

Positive Affect and Leisure Activity in Later Life

Positive affect has been shown to be associated with the greater well-being of older adults (Ostir et al., 2004; Pressman & Cohen, 2005). Previous research has found that leisure activity is one of the key determinants of positive affect in later life.

Huxhold and colleagues (2014), for example, emphasized the importance of social activities with friends and family in later life, demonstrating the significant relationship between participating in social activities and increased positive affect. Laukka (2007) showed that listening to music was a leisure activity that older adults commonly engaged in that allowed them to experience positive affect.

Volunteer activities, helping others, and interactions with family members have also been found to be significant contributors to positive affect among older adults (Lawton, Moss, Winter, & Hoffman, 2002). Lawton and colleagues additionally showed that spiritual/moral activities, which indicated a good life, philosophy of life, and spirituality, as well as leisure pursuits (e.g., cultural activities, games, exercise, travel, and attendance at a senior center) were significant determinants of positive affect in later life.

Mata and his colleagues (2012) demonstrated that self-initiated daily physical activity impacted the levels of positive and negative affects related to depressed individuals. That is, higher levels and/or longer durations of physical activities were more likely to enhance their positive affect than lower levels and/or shorter durations of physical activities. Additionally, other types of leisure activities, such as reading

novels, meeting friends, and watching television, have been found to promote positive affect in older adults (Klumb, 2004).

Deep Structured Experience

Pine and Gilmore (2011) and Rossman and Ellis (2012) noted the importance of intentionally designed structured experiences. Pine and Gilmore (2011) argued that providing well-designed experiences allows organizations to create enduring value for customers and prevents from commoditization. Rossman and Ellis (2012) proposed that the best experiences occur when customers or participants become active agents rather than passive spectators. Structured experiences may provide chances to promote life satisfaction, happiness, and personal growth. While general agreement exists around the importance of participating in and offering structured experiences, research related to structured experiences remains fragmented and the industries lack a common body of knowledge regarding how to do so most effectively. Therefore, Duerden, Ward, and Freeman (2015) reviewed and integrated the scattered studies into structured experiences from three disciplines: leisure studies, tourism, and marketing.

Duerden and colleagues' (2015) integration led to the co-creation process, interaction of participant characteristics, provider characteristics, experience outcomes, and subjective norms, which determine the quality of structured experiences. Ellis and his colleagues (in press) extended Duerden and colleagues' (2015) structured experiences framework by proposing formal definitions and propositions of a theory of structured experiences. They provided four co-created subjective experiences: immersion, absorption, engagement, and deep structured experience.

Deep structured experience is defined as an increased subjective state of intense motivation, emotion, and attention based on the integration of the concepts of deep play (Ackerman, 1999), flow (Csikszentmihalyi, 1975), and fast-thinking (Kahneman, 2011). Two sets of determinants (i.e., activity type and provider action determinants) into a state of deep structured experience were proposed from the theory of structured experiences:

Activity type determinants link immersion, absorption, and engagement to deep structured experience. A meaningful and optimally challenging task (immersion), a significant and mindful sensory encounter (absorption), and a compelling story (engagement) all have potential to yield a deep structured experience. Thus, the probability of a deep structured experience occurring increases as the intensity of immersion, absorption, and engagement increase. (Ellis et al., in press, p. 25)

Thus, an outcome of diverse structured experiences is defined as deep structured experience. Ellis and his colleagues (in press) defined deep structured experience as “a state of effortless concentration during which individuals lose (a) their sense of time, (b) their thoughts about themselves, and (c) awareness of their problems” (p. 18). For provider action propositions, on the one hand, intrinsic motivation is a key determinant of the propositions; “The importance of intrinsic interest/motivation is highlighted in descriptions of flow (Csikszentmihalyi, 1975), self-determination experiences (Deci & Ryan, 2012), deep play (Ackerman, 1999; Brown, 2009; Ellis, 1973), and peak experience (Privette, 1983)” (Ellis et al., in press, p. 26).

CHAPTER III

METHOD

This chapter provides a description of the methods used to conduct the study. In general, the experience sampling technique was used to collect the measures of participation in leisure activities, eudaimonic behaviors, and indicators of in-situ well-being of 19 older adults. The research participants also completed a measure of dispositional depression, neuroticism, and physical activity level. The following sections provide methodological details, including on the participants, instrumentation, procedures, and method of data analysis.

Participants

The participants consisted of 4 men and 15 women ranging in age from 59 to 81 ($M = 68.68$, $SD = 7.17$). They were recruited from a southwestern city in the United States. Inclusion criteria in selecting the participants included that the participants had to be at least 55 years old, able to understand the English language, have no difficulties in hearing the signals, and have no difficulties filling out the booklet. Flyers were posted at a senior citizen center and some of the participants who enrolled early recruited additional participants.

The majority of the participants were Caucasian ($n = 17$, 89.5%), while 10.5% ($n = 2$) were Asian or Pacific Islander. With regard to their education level, 63.2 % of the respondents ($n = 12$) had college degrees, 21.1 % ($n = 4$) had graduate degrees, and 15.8 % ($n = 3$) had attended colleges, but did not finish. Most of the respondents were

retired (n=17, 89.5%), but 5.3% were employed (n=1) and 5.3% were temporarily employed (n=1). With regard to marital status, 13 of the participants were married (68.4%), three of the participants were divorced (15.8%), two of participants were widowed (10.5%), and one participant was single (5.3%).

Instrumentation

Participants' Dispositions

The participants' personality traits were measured using the Big Five Inventory (BFI) (John & Srivastava, 1999). The scale includes 44 items and asks participants the extent to which they agree that a particular disposition applies to them. The statements contain, for instance, I see myself as someone who... "is talkative" or "is outgoing, sociable" (i.e., extraversion), "is helpful and unselfish with others" or "has a forgiving nature" (i.e., agreeableness), "is a reliable worker" or "does things efficiently" (i.e., conscientiousness), "gets nervous easily" or "worries a lot" (i.e., neuroticism), and "is curious about many different things" or "is ingenious, a deep thinker" (i.e., openness). The BFI is rated on a 5-point Likert-type scale (1= *strongly disagree* to 5= *strongly agree*) and composed of eight extraversion items, nine agreeableness items, nine conscientiousness items, eight neuroticism items, and ten openness items. In the current study, neuroticism was used as one of the predictors of select dispositions. The Cronbach's alpha internal consistency estimate of neuroticism was .879.

The Geriatric Depression Scale (GDS) was developed to measure depressive symptoms and screen for depression in older adults (Yesavage et al., 1983). This instrument considers the fact that depressive symptoms can appear differently to some

extent in this age group, with more sleep and health-related problems as well as less negative thinking and irritability (Hyer, 2013). The questions contain a yes/no format in order to make it easy for older adults to understand who may suffer from impaired cognitive function. A shorter version has been suggested in order to decrease difficulties in completing the scales resulting from fatigue or concentration problems. Thus, a 15-item version of the GDS, presented by Yesavage and Sheikh (1986), was used to assess the depressive symptoms of the older adults in the current study. The questions from the long-form GDS that had the highest correlation with depression in the validation studies were used in the short version. Of the 15 items, 10 items indicated depressive symptoms when answered positively (e.g., Do you feel that your life is empty?), while the remainder of the items indicated the presence of depression when answered negatively (e.g., Do you think it is wonderful to be alive now?). Scores of 0-4 were considered normal, 5-8 implied mild depression, 9-11 indicated moderate depression, and 12-15 implied severe depression. This scale has been revealed to secure good internal consistency. Studies that have used this scale showed a great level of reliability with coefficients such as .81 (Almeida & Almeida, 1999), .80 (D'ath, Katona, Mullan, Evans, & Katona, 1994), and .76 (Van Marwijk et al., 1995). It has also been shown to have a high level of construct validity based on a strong correlation with other measures of depression (e.g., Montgomery-Asberg Depression Rating Scale) (Almeida & Almeida, 1999). For the current study, this scale showed a good Cronbach alpha internal consistency of .776. Sixteen of the 19 participants (84.2%), scored as low as possible on the GDS. Three of the participants scored in the 'mild depression'

range. No participant scored in the ‘severe depression’ range. All of the participants scored seven or less, which is well below the score considered to be indicative of severe depression. The mean score on geriatric depression was 1.579 and 84.2 % of the participants did not show depressive symptoms. Those participants categorized as showing mild depression (15.8%) were all female (see Table 1).

Table 1. Cross Tabulation of Gender and Dispositional Depression (N= 19)

Gender	Geriatric Depression Scale				Total
	Normal	Mild	Moderate	Severe	
Female	12 (63.15%)	3 (15.8%)	0 (0%)	0 (0%)	15 (78.95%)
Male	4 (21.05%)	0 (0%)	0 (0%)	0 (0%)	4 (21.05%)
Total	16 (84.2%)	3 (15.8%)	0 (0%)	0 (0%)	19 (100%)

Physical activity level was measured using the Stanford Brief Activity Survey (SBAS), which is a newly developed instrumentation designed to assess the usual amount and intensity of physical activity during the past year that a person performed throughout the day (Taylor-Piliae et al., 2006). This instrumentation contains two items. The first item describes five types of on-the-job activities that range from mostly sedentary to hard physical labor. The second item describes five patterns of leisure-time activities that range from sedentary to regular vigorous activity during five or more days each week. The respondents were asked to select the one pattern that best described their on-the-job activity and the one that best described their leisure-time activity patterns. Each response pattern contained a global statement about the dimensions of frequency, intensity, and time as well as type of activity. The SBAS

activity pattern is determined using a color-coded scoring table signifying five activity categories (i.e., inactive, light, moderate, hard, and very hard). While on-the-job activity patterns are located on the vertical axis (response options - A: sedentary to J: hard physical labor), leisure-time activity patterns are located on the horizontal axis (response options - F: sedentary to J: regular vigorous activity). The intersection of these two responses on the color-coded scoring table determines the current activity pattern of the respondents. This new method appears to secure construct validity and reliability in older adults (Taylor-Piliae et al., 2010). Table 2 shows the details of the cross tabulation of the gender and physical activity levels of the participants. A large portion of the study participants (68.4%) engaged in a moderate level of physical activity, while 21.1 % participated in the light intensity physical activity. While females were predominantly involved in moderate intensity physical activities, the males evenly participated in different intensities of physical activity.

Table 2. Cross Tabulation of Gender and Stanford Brief Activity Survey (N= 19)

Gender	Physical Activity Level (Intensity)					Total
	Inactive	Light	Moderate	Hard	Very hard	
Female	0 (0%)	3 (15.8%)	12 (63.1%)	0 (0%)	0 (0%)	15 (78.9%)
Male	1 (5.3%)	1 (5.3%)	1 (5.3%)	0 (0%)	1 (5.3%)	4 (21.1%)
Total	1 (5.3%)	4 (21.1%)	13 (68.4%)	0 (0%)	1 (5.3%)	19 (100%)

Participants' Activities, Behaviors, and In-situ Well-being

The booklet (a self-report form) contained external dimensions, such as the date and time of the day, activities, physical location, and companionships, using open-ended

questions. In order to collect the daily activity information, the participants were asked “What were you doing before you were signaled?” The types of daily activity were classified into four categories: leisure activity, socializing, self-care, and household chores (Kleiber, Walker, & Mannell, 2011). Leisure activity included exercising, reading a book or newspaper, listening to music, taking a nap, and playing games. Socializing included attending senior circles, visiting children, and talking with friends. Self-care included showering, combing their hair, getting dressed, and shaving. Examples of household chores were vacuuming, washing dishes, cooking dinner, and doing the laundry.

Semantic differential items were included in the booklet in order to assess positive affect. The four items of positive affect described how the participants felt at the time they were signaled: happy, cheerful, friendly, and sociable (Larson, Mannell, & Zuzanek, 1986). These items were rated on a 7-point Likert-type scale (1 = *not at all*, 7 = *very much*). Previous studies have shown a high internal consistency of these items (e.g., Heo, Lee, McCormick, & Pedersen, 2010). In this study, their Cronbach’s alpha was .87

Situational depression was measured using additional items in the booklet. The participants were asked to rate “What extent did each of the following describe how you were feeling in the moment immediately before you were signaled?” using five descriptions: discouraged, sad, hopeless, unmotivated, and disinterested (Anxiety and Depression Association of America, n.d.). These items were rated on a 7-point Likert-type scale (1 = *not at all*, 7 = *very much*).

In order to measure deep structured experience, the definition provided by Ellis and his colleagues (in press) was used. Deep structured experience was identified using one question: “I was in a state of effortless concentration so deep that I lost a) my sense of time, b) my thoughts about myself, and c) my thoughts about my problems. I wanted very much to keep doing this activity.” It was rated on a 7-point Likert-type scale (1 = *not at all*, 7 = *very much*).

Eudaimonic behaviors were assessed using six items with four sub-dimensions: intellectual activity, friendship activity, moral behavior, and self-relevant activity. Three sub-dimensions (i.e., intellectual activity, friendship activity, and moral behavior) were adapted from the short form of the Aristotelian Ethical Behaviors in Leisure Scale (AEBLS-S), which was developed by Widmer, Ellis, and Munson (2003). Given the characteristics of Experience Sampling Method, the questionnaires were shortened to three items for intellectual activity and a single item for friendship activity and moral behavior each. These items included “I was learning something that is interesting to me” (i.e., intellectual activity), “I was doing something that helps me build or maintain a friendship” (i.e., friendship activity), and “I was doing something that is good for me” (i.e., moral behavior). These items were rated on a 7-point Likert-type scale (1 = *not at all*, 7 = *very much*).

Self-relevant activity was measured using a single item: “I was doing something that I deeply enjoy and want to do; it is who I really am and what I am meant to do.” This item was adapted from Waterman’s (1993) Eudaimonia research on personal expressiveness. It was rated on a 7-point Likert-type scale (1 = *not at all*, 7 = *very*

much).

One intervention was added to the study design. Ten of the study participants were asked to participate in at least one eudaimonic behavior each day and report it in the booklet, whereas the rest of the participants ($n=9$) were not asked to do and report anything related to eudaimonic behavior. However, it was confirmed that the intellectual activity, friendship activity, moral behavior, and self-relevant activity (i.e., eudaimonic activities) were not elevated in the group asked to include participation in eudaimonic behaviors each day. These results might be attributable to the possibility that the participants in the control group had been already doing eudaimonic behaviors in their daily lives before committing to this study. A closer look into the booklet confirmed that the participants in the control group reported engaging in eudaimonic behaviors (e.g., helping a boy clean up or volunteering at the Hospice Thrift Store) occasionally throughout the study period. Therefore, the intervention was removed from the final study design.

Procedures

The participants were invited for a screening interview at a local community center, which is an authorized site or at a location of their choice, such as a coffee shop or their home. At these interviews, the purpose, setting, and procedure of the study were explained. The participants were encouraged to contact the researcher in case they had any problems or concerns related to the study. Written informed consent was obtained from all of the participants and a small compensation was provided for engaging in the study.

The study employed the Experience Sampling Method (ESM) which was developed to understand the process of person-context interactions (Larson & Csikszentmihalyi, 1983). Participants in the ESM were signaled with an electronic device at random times within a fixed-time period and required to report their moods, activities, and/or thoughts in a self-report form (i.e., booklet) whenever they received the signals. The ESM has become a popular method in behavioral sciences since the method can capture situational variations as they occur in real time (Hofmann & Patel, 2015). In other words, experience sampling subdues a lot of the typical drawbacks of cross-sectional research designs, including recall bias, by capturing variables where and when the action takes place (Shiffman, Stone, & Hufford, 2008). Thus, the ESM offers greater ecological validity (Hektner, Schmidt, & Csikszentmihalyi, 2006; Larson & Csikszentmihalyi, 1983) than time-diary methods and other correlational designs.

While pagers, wristwatches, and PDAs had been used to signal participants in earlier ESM studies, the advent of smartphone technology and the greater availability of smartphones in the general population allowed the researchers to conduct experience sampling studies on participants' own devices with the short message service (SMS) approach (Miller, 2012). The SMS approach utilizes cell phone text messaging as a signaling and reminder device. The text signals include a hyperlink directing the participants to an online survey, which is easy-to-use survey software and a simple and convenient sign-up system (Hofmann & Patel, 2015).

This study, however, partially used both the classical approach and the SMS approach. While the study participants were generally familiar with using text message

on smartphones, they were not comfortable filling out questionnaires via their smartphones. The older adults in this study preferred to use the paper booklet because they preferred handwriting to tapping answers on their smartphones. Thus, the participants kept a paper booklet over the course of the week and used their own smartphones for seven consecutive days as a signaling device. I sent the text messages to signal randomly five times a day between the hours of 9:00 am and 9:00 pm. The participants were asked to fill out the questionnaires in the booklet in response to the signals in order to show who they were with, what they were doing, and how they felt at the time they heard the signals as well as to fill out the questionnaires of the situational indicators of well-being and in-situ participation in their daily experiences.

After the one week study period, the participants were contacted to set up a follow-up meeting to return the booklets and administer the exit surveys. The exit surveys included demographic characteristics, scales measuring dispositional depression and neuroticism, and a procedure for measuring physical activity levels.

Data Analysis

The data was collected both at the SMS level (i.e., immediate situations showing leisure activity, situational depression, positive affect, eudaimonic behaviors, and deep structured experience) and person level (i.e., neuroticism, physical activity level, and dispositional depression). Hierarchical Linear Modeling (HLM) was used for the data analysis because each immediate situation observation was nested within a different individual. The Level 1 variables were leisure activity, situational depression, positive affect, eudaimonic behaviors, and deep structured experience. The Level 2

variables were neuroticism, physical activity level, and dispositional depression.

All of the models were estimated using HLM version 7.0 software (Raudenbush, 2004). Separate models were evaluated for each of the three indicators of in-situ well-being: situational depression, positive affect, and deep structured experience.

Specifically, the following linear model was tested for each of the three indicators:

Level 1 Model

$$Y_{ij} = \beta_{0j} + \beta_{1j} * \text{Leisure Activity}_{ij} + \beta_{2j} * \text{Intellectual Activity}_{ij} + \beta_{3j} * \text{Friendship Activity}_{ij} + \beta_{4j} * \text{Moral Behavior}_{ij} + \beta_{5j} * \text{Self-relevant Activity}_{ij} + e_{ij}$$

Level 2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * \text{Neuroticism}_j + \gamma_{02} * \text{Dispositional Depression}_j + \gamma_{03} * \text{Physical Activity Level}_j + \mu_{0j}$$

$$\beta_{1j} = \gamma_{10} + \mu_{1j}$$

$$\beta_{2j} = \gamma_{20} + \mu_{2j}$$

$$\beta_{3j} = \gamma_{30} + \mu_{3j}$$

$$\beta_{4j} = \gamma_{40} + \mu_{4j}$$

$$\beta_{5j} = \gamma_{50} + \mu_{5j}$$

CHAPTER IV

RESULTS

This chapter provides a summary of results of the analysis of data. Two sections are included. The first provides a summary of descriptive statistics, including characteristics of the sample of participants, the sample of experiences, and the distributions of the dependent variables. The chapter concludes with a summary of results, with focus on results of hypothesis tests.

Descriptive Statistics

The participants ($N= 19$) were asked to complete the ESF five times a day for seven consecutive days. Each participant could thus have produced a total of 35 responses, yielding 665 responses for the full sample. However, 27 questionnaires were not completely filled out because respondents missed a few signals or left some questionnaires blank even when they filled out the booklet immediately after receiving signals. Therefore, a total of 638 responses were used in the final analysis. The overall response rate was 96 percent.

Principal components analysis, with varimax (orthogonal) rotation, was used to create factor scores to serve as measures of situational depression and positive affect in subsequent analyses. Results are presented in Table 3. The first factor, “situational depression,” accounted for 18.8 percent of the variance (eigenvalue= 1.695). The factor loadings for five items of situational depression ranged from .646 to .879. The positive affect items loaded on the second factor. That factor explained 55.8 percent of

the total variance (eigenvalue=5.022). The factor loadings for four items of positive affect ranged from .852 to .930.

Table 3. Factor Analysis Results

	Factor 1: Situational Depression	Factor 2: Positive Affect	Communalities
Friendly	-.155	.930	.889
Sociable	-.207	.892	.839
Cheerful	-.295	.880	.861
Happy	-.313	.852	.825
Sad	.879	-.146	.794
Hopeless	.856	-.139	.752
Discouraged	.818	-.235	.723
Unmotivated	.680	-.275	.538
Disinterested	.646	-.281	.496
Eigenvalue	1.695	5.022	

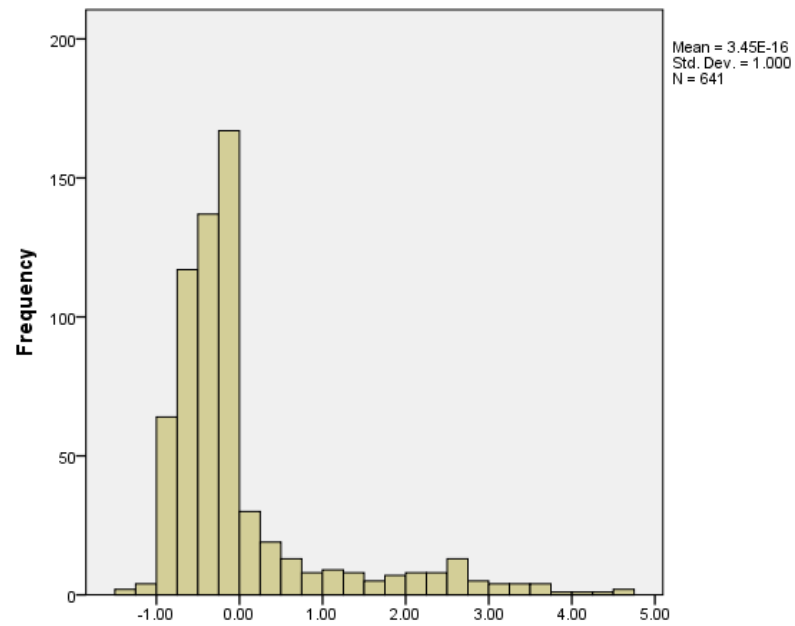


Figure 1. Distribution of Situational Depression Factor Analysis Scores

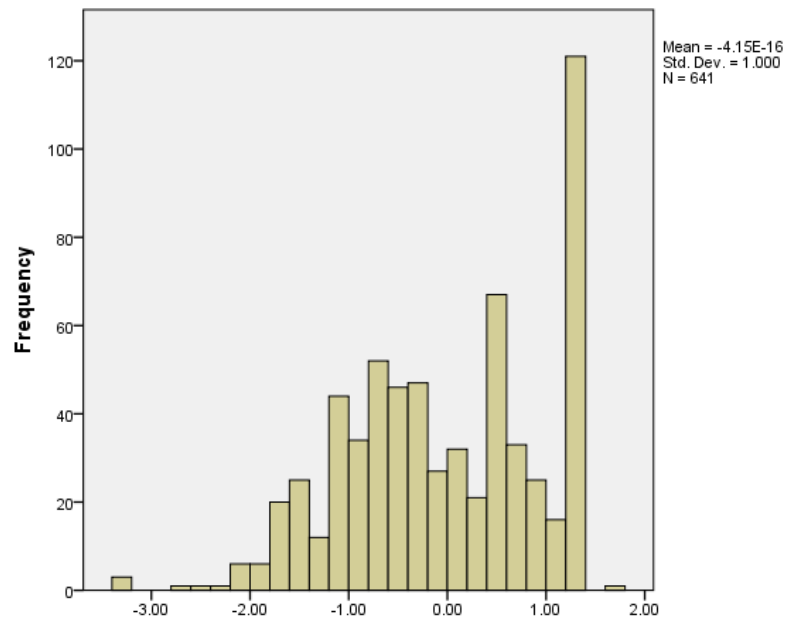


Figure 2. Distribution of Positive Affect Factor Analysis Scores

Table 4. Descriptive Statistics of Questionnaire Based Scales

Variables	M	SD	Skewness	Kurtosis	N of Items	Cronbach α
<u>Criterion Variables</u>						
Factor 1: Situational Depression*	0	1	2.235	4.796	5	-
Factor 2: Positive Affect*	0	1	-.311	-.610	4	-
Deep Structured Experience	3.534	2.229	.263	-1.369	1	-
<u>Predictors</u>						
Intellectual Activity	3.342	1.585	.476	-.445	3	.645
Friendship Activity	4.122	2.310	-.121	-1.494	1	-
Moral Behavior	4.052	2.157	-.047	-1.352	1	-
Self-relevant Activity	4.321	2.089	-.238	-1.222	1	-
Neuroticism	2.408	.802	.590	-.177	8	.879
Physical Activity	2.790	.787	.410	3.640	-	-
Geriatric Depression Scale	1.579	2.194	1.275	.576	15	.776

* Situational depression and positive affect are factor analysis scores

Table 4 summarizes the means, standard deviations, skewness, kurtosis, the number of items, and Cronbach alpha internal consistency (reliability) estimates of scales used for hypothesis testing. Internal consistency estimates of intellectual activity, neuroticism and geriatric depression scale were .645, .879, and .776, respectively. The factor score representing the situational depression items had notable positive skewness (2.235) and was leptokurtic. The distribution of situational depression factor scores is

presented in figure 1. The distribution of positive affect resembled a normal distribution, with the exception that a substantial fraction of the scores fell at the high end of the distribution (figure 2). Other variables with distributions that were notable departures from normality were deep structured experience (kurtosis= -1.369), friendship activity (kurtosis= -1.494), moral behavior activity (kurtosis= -1.352), self-relevant activity (kurtosis= -1.222) and physical activity level (kurtosis= 3.64). Thus, distributions of deep structured experience, friendship activity, moral behavior activity, and involvement in self-relevant activity were platykurtic; scores were distributed broadly across the full range of values of those variables. In contrast, physical activity level was leptokurtic. The majority of participants ($n=13$, 68%) scored at level 3 (“moderate activity”) on physical activity level. As a whole, these data suggest a healthy sample of older adults. Participants report an active lifestyle, positive affect, involvement in a range of activities consistent with eudaimonia, and low levels of depression.

Leisure activity, a dichotomous variable, was also included in the hierarchical linear model. Two hundred twenty seven of the 641 observations (35.4%) were coded as leisure activities.

Hypothesis Tests

The Hierarchical Linear Modeling was used to estimate levels of outcome variables (i.e., situational depression, positive affect, and deep structured experience) from experience variables (i.e., leisure activity and eudaimonic behaviors) and individual difference variables (i.e., dispositional depression, neuroticism, and physical activity

level). Within-individual association between older adults' immediate responses of experience variables and outcome variables (e.g., situational depression) was estimated using the following equation:

$$Y_{ij} = \beta_{0j} + \beta_{1j} * Leisure\ Activity_{ij} + \beta_{2j} * Intellectual\ Activity_{ij} + \beta_{3j} * Friendship\ Activity_{ij} + \beta_{4j} * Moral\ Behavior_{ij} + \beta_{5j} * Self - relevant\ Activity_{ij} + e_{ij}$$

Where Y_{ij} is the situational depression of individual j on signal i ; β_{0j} is the mean situational depression score of individual j across the entire signals of the study (35 signals); β_{1j} is the association between the situational depression and leisure activity for individual j on signal i ; β_{2j} is the association between the situational depression and intellectual activity for individual j on signal i ; β_{3j} is the association between the situational depression and friendship activity for individual j on signal i ; β_{4j} is the association between the situational depression and moral behavior for individual j on signal i ; β_{5j} is the association between the situational depression and self-relevant activity for individual j on signal i ; and e_{ij} is the residual variance in the repeated measurements from individual j , assumed to be independent and normally distributed across subjects.

Situational Depression

The results of HLM for situational depression of the study participants are given in Table 5. As a first step, a null model (unconditional model) was estimated to evaluate variation attributable to individual differences. The null model indicates whether the HLM is necessary and appropriate for the study. The result of the final

estimation of variance components ($\chi^2(18) = 630.392, p < .001$) indicates statistical justification for using HLM. Also, the intraclass correlation (ICC) indicates the percentage of the variance in the outcome variable that is attributable to within-individual level vs. between-individual factors. The ICC was .506 which means that 50.6 percent of the variance in the situational depression could be accounted for by factors associated with individual differences (Level 2) and 49.4 percent of the variance was due to the effects of individuals' experiences (Level 1).

Second, the random coefficient model without Level 2 predictors was tested. The random coefficient model tests the unique effects of Level 1 predictors on situational depression. As shown in Table 5, the variance in situational depression explained by within-individual level variables was .150. In other words, the in situ experience variables explained 15.0 percent of the variance in the situational depression. Only one in situ variable was found to be significant: leisure activity was negatively related to situational depression ($\gamma = -.128, p < .05$).

Lastly, the random coefficient model with both Level 1 (in situ experiences) Level 2 (dispositions) predictors was estimated. In this model, Level 1 predictors accounted for 15.2 percent of the variance in situational depression and no additional variance was explained by Level 2 predictors. The effect of leisure activity on situational depression was negative and significant ($\gamma = -.132, p < .05$). The remaining within-individual predictors (i.e., intellectual activity, friendship activity, moral behavior, and self-relevant activity) were not significantly related to situational depression. Among individual difference variables, neuroticism was significantly associated with

situational depression ($\gamma = .462, p < .05$), and physical activity level was inversely related to situational depression ($\gamma = -.236, p < .01$).

Table 5. Hierarchical Linear Modeling Results for Situational Depression

Variable	Null model	Within-person level predictors	Between-person level predictors
Level 1			
Intercept	-.001	.044	.055
Leisure Activity		-.128*	-.132*
Intellectual Activity		-.045	-.048
Friendship Activity		-.005	-.001
Moral Behavior		-.009	-.011
Self-relevant Activity		-.011	-.009
Level 2			
Neuroticism			.462*
Dispositional Depression			-.023
Physical Activity Level			-.236**
Within-person residual variance	.510	.433	.432
R^2 Level 1 (within-person)		.150	.152
R^2 Level 2 (between-person)			.000
Model deviance	1447.199	1413.350	1413.008
Random effects	Variance Component	df	X^2
Intercept	.588***	14	170.012
Leisure Activity	.016	17	14.143
Intellectual Activity	.013**	17	39.799
Friendship Activity	.007*	17	30.585
Moral Behavior	.019**	17	36.012
Self-relevant Activity	.011**	17	42.717

* $p < .05$, ** $p < .01$, *** $p < .001$

Positive Affect

The results of HLM for positive affect of the study participants are given in Table 6. First, a null model (unconditional model) was calculated and the variance component of level 2 supports running HLM ($\chi^2(18) = 787.905, p < .001$). The ICC was .562 which means that 56.2 percent of the variance in the positive affect could be explained by individual differences (Level 2) and 43.8 percent of the variance was attributable to individuals' in situ experiences (Level 1).

Second, the random coefficient model without Level 2 predictors was calculated. The random coefficient model tests the unique effects of Level 1 predictors on positive affect. As shown in Table 6, the variance in positive affect explained by within-individual level dropped to .349 as a result of including the within-person predictors. In other words, leisure activity, eudaimonic behaviors (intellectual activity, friendship activity, moral behavior, and self-relevant activity) accounted for 34.9 percent of the variance in the positive affect. Four predictors were significant. Positive affect was negatively associated with leisure activity ($\gamma = -.090, p < .05$), and was positively associated with friendship activity ($\gamma = .081, p < .01$), moral behavior ($\gamma = .047, p < .05$), and self-relevant activity ($\gamma = .100, p < .001$).

Lastly, the random coefficient model with Level 2 predictors was estimated. In the final model, within-individual variables explained 35.0 percent of the variance in positive affect, and between-individual variables accounted for 41.3 percent of the variance. The effect of leisure activity on positive affect was inverse and significant ($\gamma = -.092, p < .05$), and the effects of friendship activity ($\gamma = .081, p < .01$), moral behavior

($\gamma = .052, p < .05$), and self-relevant activity ($\gamma = .090, p < .001$) were positive and significant. Among individual difference variables, dispositional depression was negatively associated with positive affect ($\gamma = -.090, p < .01$). Relations between the other two individual difference variables and positive affect were not significant.

Deep Structured Experience

The results of HLM for deep structured experience of the study participants are given in Table 7. First, a null model (unconditional model) was calculated. The Level 2 residual variance was found to be significantly different from zero, which supports the use of HLM ($\chi^2(18) = 396.764, p < .001$). The ICC was .385 which means that 38.5 percent of the variance in the deep structured experience was attributable to individual differences (Level 2) and 61.5 percent of the variance was at individuals' experiences (Level 1). The average score of deep structured experience was 3.543 across all participants.

Second, the Level 1 model (in situ experiences), without Level 2 predictors, was estimated. The random coefficient model tests the unique effects of Level 1 predictors on the deep structured experience. As shown in Table 7, the variance in deep structured experience was accounted for by within-individual level was .442.

In other words, leisure activity, intellectual activity, friendship activity, moral behavior, and self-relevant activity accounted for 44.2 percent of the variance in the deep structured experience. Significant relations were found for leisure activity ($\gamma = .541, p < .01$), intellectual activity ($\gamma = .122, p < .05$), and self-relevant activity ($\gamma = .544, p < .001$).

Table 6. Hierarchical Linear Modeling Results for Positive Affect

Variable	Null model	Within-person level predictors	Between-person level predictors
Level 1			
Intercept	.007	.041	.040
Leisure Activity		-.090*	-.092*
Intellectual Activity		-.002	.003
Friendship Activity		.081**	.081**
Moral Behavior		.047*	.052*
Self-relevant Activity		.100***	.090***
Level 2			
Neuroticism			-.105
Dispositional Depression			-.090**
Physical Activity Level			-.039
Within-person residual variance	.454	.296	.295
R^2 Level 1 (within-person)		.349	.350
R^2 Level 2 (between-person)			.413
Model deviance	1377.947	1159.924	1158.513
Random effects	Variance Component	df	X^2
Intercept	.341***	14	218.038
Leisure Activity	.002	17	14.200
Intellectual Activity	<.001	17	11.961
Friendship Activity	.005*	17	33.516
Moral Behavior	.005	17	23.564
Self-relevant Activity	.003	17	27.299

* $p < .05$, ** $p < .01$, *** $p < .001$

Lastly, the random coefficient model with Level 2 predictors was estimated.

In the final model, 44.4 percent of the variance in deep structured experience was explained by Level 1 predictors, and 36.2 percent of the variance was explained by Level 2 predictors. The effects of leisure activity ($\gamma = .547, p < .01$), intellectual activity

($\gamma = .128$, $p < .01$), and self-relevant activity ($\gamma = .535$, $p < .001$) on deep structured experience were positive and significant.

Table 7. Hierarchical Linear Modeling Results for Deep Structured Experience

Variable	Null model	Within-person level predictors	Between-person level predictors
Level 1			
Intercept	3.543***	3.374***	3.386***
Leisure Activity		.541**	.547**
Intellectual Activity		.122*	.128**
Friendship Activity		.049	.046
Moral Behavior		-.069	-.067
Self-relevant Activity		.544***	.535***
Level 2			
Neuroticism			-.434
Dispositional Depression			.049
Physical Activity Level			.123
Within-person residual variance	3.116	1.737	1.732
R^2 Level 1 (within-person)		.442	.444
R^2 Level 2 (between-person)			.362
Model deviance	2591.902	2280.658	2282.035
Random effects	Variance Component	df	X^2
Intercept	1.246***	14	152.795
Leisure Activity	.232	17	25.734
Intellectual Activity	.009	17	18.177
Friendship Activity	.026	17	20.696
Moral Behavior	.011	17	21.253
Self-relevant Activity	.064***	17	44.630

* $p < .05$, ** $p < .01$, *** $p < .001$

Summary of Results

A summary of results of hypothesis tests is presented in Table 8. The symbols “Sig.” and “+” or “-” indicate the significance and direction of the relation. Leisure activity, for example, has a significant relation with situational depression (“Sig.” in Table 8) and that relation is inverse, as indicated by the negative sign, “-.” Significant predictors of situational depression included leisure activity (inverse relation), neuroticism, and physical activity level (inverse relation). For positive affect, leisure activity (inverse relation), eudaimonic behaviors (friendship activity, moral behavior, self-relevant activity), and dispositional depression (inverse relation) were significant. For deep structured experience, leisure activity and eudaimonic behaviors (intellectual activity, self-relevant activity) were significant.

Table 8. Summary of Results of Full Models

	Situational Depression	Positive Affect	Deep Structured Experience
Leisure Activity	Sig.(-)	Sig.(-)	Sig.(+)
Intellectual Activity			Sig.(+)
Friendship Activity		Sig.(+)	
Moral Behavior		Sig.(+)	
Self-relevant Activity		Sig.(+)	Sig.(+)
Neuroticism	Sig.(+)		
Dispositional Depression		Sig.(-)	
Physical Activity Level	Sig.(-)		
Level 1 R ² (in-situ)	.152	.350	.444
Level 2 R ² (dispositions)	0	.413	.362

CHAPTER V

DISCUSSION

This study examined the relationship between two sets of predictor variables and situational indicators of well-being among a sample of older adults. The predictor variable sets included in-situ participation in different types of daily activities, and select dispositions (i.e., neuroticism, dispositional depression, and general level of physical activity). The outcome variables were three indicators of in-situ well-being: positive affect, situational depression, and prevalence of deep structured experience. Significant relationships were found for all three outcomes, but the pattern of significant predictors was not the same across the three outcomes.

For positive affect, four in-situ predictors were significant: involvement in active leisure activity (vs. non-leisure activity), involvement in an activity that promoted friendship, involvement in an activity that affirmed moral commitments, and involvement in a self-relevant activity. Dispositional depression was also found to be a significant predictor of positive affect.

Three variables were significant predictors of situational depression: in-situ leisure activity participation, general level of physical activity, and neuroticism. For deep structured experience, three in-situ variables were found to be significant predictors: leisure activity participation, participation in an intellectually engaging activity, and self-relevance of the activity. The strength of relationship was moderate for positive affect and deep structured experience: R^2 values ranged from .35 to .44 (within-person) and

from .36 to .41 (between-person). For situational depression, the R^2 was .15 (within-person).

It is particularly notable that this sample included healthy and active older adults. The participants rated their health as very good on average ($M= 3.684$, $SD= .885$) and reported low dispositional depression ($M= 1.579$, $SD= 2.194$). This dispositional depression mean falls within the range considered ‘normal’ on the Geriatric Depression Scale (Yesavage & Sheikh, 1986). Sixteen of the 19 participants (84%) scored in the normal range. The healthiness of the sample was almost certainly the reason for the limited variability observed in the measures of dispositional and situational depression. The distributions of both of those variables were notably leptokurtic. Despite the limited variability, the results indicated that daily, in-situ activities mitigated situational depression, elevated positive affect, and intensified the motivational and attentional state of deep structured experience of the participants.

An expansive body of literature has shown that leisure activity is able reduce depressive dispositions among older adults (e.g., Hong et al., 2009; Ritchey et al., 2001) and this study added to that body of knowledge with regard to the significance of leisure participation for managing the quality of daily experiences in older adults’ daily lives. Situational depression can be attributable to momentarily unpleasant emotions, acute stress, and temporarily feeling bad, which are not connected to continuous, long-term, negative circumstances. Leisure activity has been regarded as a source of escaping the pressures of individuals’ everyday lives (Stebbins, 1997, 2001; Watkins & Bond, 2007), particularly as a form of relaxed leisure. An examination of the data revealed that 81.8 %

of the leisure activities could be categorized as relaxation. This study suggested that a relaxed form of leisure activities among older adults, such as watching television or reading a book or newspapers, helped to dismiss the pressures or stresses from their daily lives. Relaxed leisure activities may not only lead to a lower level of immediate depression, but also support the importance of leisure activities in older adults' daily lives as a determinant of in-situ well-being.

Involvement in physical activity was also found to be a significant predictor of situational depression. Along with previous studies that showed the protective role of physical activity in depression at an advanced age (Lampinen et al., 2000; Strawbridge et al., 2002) as well as demonstrated that sedentary behaviors were detrimental to mental health in community-dwelling older adults (e.g., Balboa-Castillo, León-Muñoz, Graciani, Rodríguez-Artalejo, & Guallar-Castillón, 2011), this study demonstrated that physical activity can alleviate the momentary depressed moods of daily life. Thus, the current study extended the body of knowledge with regard to the effect of physical activity on situational depression, which, in turn, suggests that physical activity can promote the in-situ mental health of older adults.

The relationship between neuroticism and dispositional depression has been widely examined (e.g., Steunenberg et al., 2006), whereas its association with situational depression has been rarely investigated. This study demonstrated that neuroticism is related to situational depression among older adults. Previous research has shown that individuals with higher levels of neuroticism tend to be vulnerable and react to stress emotionally (Jeronimus et al., 2014). Thus, it is not a surprise that older adults with

high levels of neuroticism are likely to experience momentary depressed moods and are less likely to cope with the immediate stress of unexpected daily events successfully. While the study participants showed lower levels of neuroticism ($M= 2.408$, $SD=.802$), that variable was found to be significantly related to situational depression. Therefore, the association between neuroticism and situational depression should be firmly recognized and properly applied to the real world. For older adults who participate in recreational programs at the community-level, neurotic older adults tend to be more easily discouraged and immediately depressed when the program is challenging to the extent that it is beyond their capabilities. As such, recreation program providers should take the neurotic disposition of the older participants into consideration in order to prevent causing them to experience momentary depressed moods.

With regard to positive affect, one finding was notably different from that of previous studies. In previous studies, leisure has been found to be positively correlated with measures of positive affect (Lawton et al., 2002; Mata et al., 2012). In contrast, the current study revealed an inverse relationship between active leisure and positive affect. This discrepancy may be explained in terms of the way that the leisure activity variable has been defined and operationalized. Previous researchers have operationalized leisure by contrasting active and passive forms (Shin & You, 2013). The current study, however, did not distinguish between active and passive forms of leisure. Rather, leisure activity was one of four types: leisure, socializing, self-care, and household chores.

The means of the positive affect, situational depression, and deep structured

experience are reported by activity type in Table 9. The table shows that the socializing and personal care activities yielded higher affect than leisure activities in positive affect. Leisure activities were lowest in situational depression and highest in deep structured experience. These means revealed that socializing and engaging in self-care activities (e.g., bathing, dressing, applying make-up, shaving) can be very pleasing immediate experiences (positive affect), while leisure activities tend to elicit more intense states of motivation and emotion (deep structured experience) and are most effective in minimizing situational depression.

Table 9. Means of the Outcome Variables by Activity Type

	Positive Affect*	Situational Depression*	Deep Structured Experience
Leisure	.003	-.105	3.987
Socializing	.107	.055	3.528
Personal Care	.205	-.094	3.558
Household Chores	-.144	.139	3.028
Total	-.002	<.001	3.536

* Positive affect and situational depression are factor analysis scores

Eudaimonic behaviors (i.e., friendship activity, moral behavior, self-relevant activity) were shown to be significant determinants of positive affect in older adults. In other words, involvement in an activity that affirmed moral commitments, having meaningful relationships with others, and involvement in self-relevant activities could be considered significant contributors to well-being in later life. From the perspective of

Eudaimonia, people can be considered as being good by fulfilling their potential to pursue intrinsically meaningful goals rather than by obtaining simple pleasure or removing immediate pain (Steger et al., 2008). Previous studies have demonstrated that engaging in meaningful pursuits is more conducive to well-being than pleasure-seeking behaviors (McMahan & Estes, 2011; Steger et al., 2008).

This study also demonstrated the importance of engaging in eudaimonic behaviors for the well-being of older adults. Involvement in intrinsically meaningful activities, particularly in expressing virtue which involves making the right choices, as well as building healthy relationships with others successfully predicted well-being in older adults. From the Aristotelian view of Eudaimonia (Aristotle, 1985), living well involves actively striving for what is inherently worthwhile. While leading a meaningful and worthwhile life contributes to well-being across all age groups (King, Hicks, Krull, & Del Gaiso, 2006), it is highly recommended for the older population since they are less likely to have goals in life and less likely to feel useful as they get older (Pinquart, 2002). Along with the existing findings indicating that having a meaning in life is a crucial component in later life (Reker, 2005; Steger et al, 2009), this study strongly suggested that engaging in an activity that enabled older adults to maximize their capabilities to achieve their potentials to pursue meaningful goals promoted well-being.

Self-relevant activity was found to be a significant predictor of positive affect in daily lives, which is consistent with the past studies that showed that individuals who actively strove to achieve self-relevant goals were more likely to experience higher well-

being (Banaji & Prentice, 1994; Cantor & Fleeson, 1991; Cantor & Sanderson, 2003). According to Sheldon, Ryan, Rawsthorne, and Ilardi (1997), an individual can fully experience a feeling of authenticity when living with a higher sense of choice and self-expression; the feeling of authenticity has been found to be related to subjective well-being and life satisfaction. In the current study, it could be suggested that daily engagement in a self-relevant activity with a sense of self-expression may elevate older adults' senses of authenticity, which, in turn, contributes to emotional well-being. It seems like that the ability to express oneself and utilize one's ability is crucial at an advanced age (Baltes & Smith, 1999). This study shed light on the importance of having a healthy self-image through voluntary and personally expressive choices in later life and also suggested that involvement in intrinsically motivated self-relevant activities could be an appropriate source for an emotionally healthy life with realizing true self in older adults.

Dispositional depression was negatively related to positive affect. Only three participants showed mild dispositional depression in this study. The results, though, showed that depressive tendency (as indicated by GDS scores) was detrimental to positive affect in older adults' daily lives. This study added evidence to the existing knowledge that depressive symptoms contribute to reduced well-being in older populations (Beekman et al., 2002; Ormel et al., 1998). As noted earlier, major depression is commonly underdiagnosed and undertreated, thus, aggressive methods for recognition, diagnosis, and treatment need to be utilized in order to minimize the symptoms as well as enhance both quality of life and overall functioning of older adults

(Lebowitz et al., 1997).

The results advanced our knowledge about the role of daily experiences in Eudaimonia. Waterman (1993, p. 678) explained that Eudaimonia is “an ethical theory that calls people to recognize and live in accordance with the *daimon* or ‘true self.’” Efforts to live in accordance with ones’ true potential, including activities that are self-relevant, give rise to the condition of Eudaimonia (Waterman, 1993). Widmer and his colleagues (2003) argued that self-relevant activities consistent with Eudaimonia include those activities that involve heightened intellectual and creative activities; nurturance of close, personal (i.e., intimate) relationships with others; and moral behaviors. Consistent with the perspectives of Waterman (1993) and Widmer (2003), two of the eudaimonic behaviors (i.e., intellectual activity, self-relevant activity) included in this study were found to be significant contributors to deep structured experience.

It is also important to note that activities involving nurturing close personal relationships with others and moral behaviors were not found to be significant predictors of deep structured experience. Perhaps the failure to find significant relationships for these two variables can be explained through the limitations of the measurement procedure used in the current study. ‘Intimate relationship’ activities were measured as the participants’ responses to the item “I was doing something that helps me build or maintain a friendship.” The word ‘friendship’ generally refers to relationships that have a great range of intimacy. Social media friends, for example, may be individuals whom a person may have never personally met. On the other end of the continuum are relationships that have exceptionally high degrees of intimacy. Examples are a

mother's love for her children and partners in a strong marriage. Thus, 'friendship' in the item may have too much ambiguity as an indicator of the activity that signals Eudaimonia.

A similar critique of moral behavior can be advanced. The item measuring moral behavior was "I was doing something that is good for me." An individual may, of course, participate in a broad array of activities that advance her or his health, social status, or financial status that have little to do with morality.

The conception of Eudaimonia concentrates on the content of one's life and the processes engaged in living well (Ryan et al., 2008; Waterman, 1993). Participation in intellectually engaging and self-relevant activities can play a role in living well, in a form of intense state of motivation and emotion (deep structured experience). Intrinsic motivation in self-relevant activities is one of the key determinants of deep structured experience and also an indicator of eudaimonic activity (Waterman, 1993). This study showed that involvement in self-relevant activity is associated with deep structured experience of older adults. In other words, engagement in a self-relevant daily activity with autonomous interest leads to being in a fully immersed state to the extent that allows older adults to lose their sense of time as well as to forget the surrounding circumstances and themselves. Daily involvement in an intellectually engaging activity also promotes an intense state of motivation and emotion. Such findings are consistent with previous research that eudaimonic activities are conducive to inducing flow (Henderson, Knight, & Richardson, 2014). Csikszentmihalyi (1990) indicated that intrinsically motivated activities often tend to be optimally challenging

and lead to absorbing experiences (e.g., flow). Csikszentmihalyi (1975; 1990) also noted that complete involvement in a personally valued and desired task, which is characterized as a flow state, contributes to greater well-being. This study may suggest that participating in a self-relevant daily activity and an intellectually engaging activity, which is intrinsically motivated, leads to a higher level of deep structured experience, which, in turn, can improve well-being in later life.

Deep structured experience was also attributable to participation in leisure activity in older adults' daily lives, which means that leisure activities tend to elicit more intense states of motivation and emotion for older adults. Older adults, for example, who are really enjoying watching a football game, can be fully immersed in the game, which allows them to be intensely motivated. If their team lost, however, older adults are less likely to feel positive affect. This study, thus, showed that engagement in leisure activity can lead to a transitory state of intense attention and motivation among older adults; however, it does not necessarily allow them to experience positive affect.

In the current study, both Widmer and his colleagues' (2003) perspectives of Eudaimonia and Waterman's (1993) perspective of Eudaimonia exist. In the Widmer and his colleagues' perspectives (2003), intellectual activity, having meaningful relationships and moral behavior are the key components of the real goods of Aristotelian good life. In the Waterman's perspective (1993), feelings of personal expressiveness and self-realization are central to Eudaimonia. This study showed that all of the predictors related to Eudaimonia from both perspectives had significant impacts on the situational indicators of well-being. In summary, older adults are likely

to have optimal experiences with intense motivations as well as elevated positive affect when pursuing intrinsically meaningful goals, such as promoting friendship or participating in an intellectually engaging activity, in their daily lives. This study strongly suggested that engaging in an activity that allows older adults to strive for what is inherently worthwhile can be an important element in their daily lives. Also, a self-relevant activity with intrinsic aspiration plays a role in well-being at an advanced age. Building a positive self-image through engaging in personally expressive activities seems to be a significant determinant of having positive emotions as well as absorbing experiences.

Limitations of the Study

Despite significant findings and contributions to the existing body of knowledge, there are some limitations that need to be addressed in this study. First, the demographic characteristics of the study participants need to be concerned in terms of the generalization of the results of this study. A large portion of the study participants were female (79%) and had a high education level. A total of 84.3 % of the respondents held a college or graduate school degree. Uneven gender distribution and the comparatively high education level may lead to overestimated effects of eudaimonic behaviors on well-being in later life and result in a lack of generalization.

Second, this study mainly focused on examining the effects of eudaimonic behaviors on in-situ well-being of older adults. If hedonic behaviors are added to the study design as one of the predictors, then it might be possible to investigate whether eudaimonic behaviors are more strongly associated with well-being than hedonic

behaviors which are characterized by obtaining simple pleasures or material goods.

The presence of a comparison group would be more effective in regard to supporting the importance of an eudaimonic life, which is based on the pursuit of inherently worthwhile activities, if the comparison group, which would be engaged in hedonic behaviors, showed weaker effects on in-situ well-being.

Finally, the study participants were a healthy and active group of people with lower levels of depression and good perceived health. The healthiness of the sample might be attributable to the fact that most of the participants were recruited from local community centers. They seemed to usually participate in the programs that community centers provide, which could be partially linked to their active life patterns. Therefore, the characteristics of the study participants, in terms of having healthy and active lives, might affect the associations among the study variables (e.g., related to depression or neuroticism).

Conclusion

The findings of the current study demonstrated that leisure participation and physical activity level were inversely related to situational depression, and neuroticism was significantly related to situational depression. For positive affect, leisure activity (inverse relation), eudaimonic behaviors (friendship activity, moral behavior, self-relevant activity), and dispositional depression (inverse relation) were significant predictors. In addition, leisure activity and eudaimonic behaviors (intellectual activity, self-relevant activity) were significantly related to deep structured experience. These findings suggested that active leisure participation and engaging in eudaimonic

behaviors can promote in-situ well-being of older adults.

Recommendations for Future Research

It is apparent that further study is needed to better understand the eudaimonic life and in-situ well-being of older adults as well as to compensate for the limitations and shortcomings of the current study.

First, future studies need to replicate this study with more diverse samples. In order to better clarify the understanding of the eudaimonic behaviors and in-situ well-being of older adults, the findings of this study must be replicable in different samples, such as older adults in other countries or ethnic groups. The majority of the participants in the current study, for example, were Caucasian (n= 17, 89.5%). However, the eudaimonic behaviors of Hispanics or African Americans may be different from other ethnic groups and their data might lead to divergent results. In addition, investigating gender differences in eudaimonic behaviors and well-being might result in interesting findings.

Second, future studies need to examine the moderate effects of select dispositions on the associations between outcome variables and in-situ participation in different types of daily experiences. The current study did not add Level 2 predictors, which would predict random slopes in the HLM model, since the study mainly focused on the main effects of each predictor. By adding Level 2 variables, future studies could explore how individuals' dispositions (Level 2 predictors) moderate the relationships between individuals' experiences (Level 1 predictors) and the outcome variables, in addition to the main effects of each Level 1 and Level 2 predictor.

Third, future studies need to simultaneously investigate the effects of eudaimonic behaviors and their counterparts in hedonic behaviors on in-situ well-being of older adults. Such an investigation would allow researchers to compare which type of behaviors is more important in later life and also which type has a stronger effect on in-situ well-being.

Practical Implications of the Study

The current study strove to make theoretical contributions to contemporary human dimension studies with regard to Eudaimonia and in-situ well-being of older adults. Along with the theoretical contributions of this study, the possible practical implications from the study need to be addressed.

This study showed the significant effects of involvement in physical and leisure activities on in-situ well-being of older adults. As such, recreation practitioners should take into consideration the positive aspects of leisure participation when arranging community programs for senior citizens or encouraging them to actively participate in recreation activities. As noted earlier, 81.8 % of the leisure participation in the study was a relaxed form of a leisure activity. Arranging an informal social gathering for watching football games with others, such as a ‘Senior Game Night’ is a great example of helping people participate in a relaxed leisure activity, which can be implemented at the community-level. ‘Book Club,’ ‘Quilt Group,’ or ‘Movie Night’ may be also appropriate forms of community-level recreation programs that could be used to facilitate older adults’ active engagement in leisure activities as relaxation. However, being active through physical activities has been also shown to be important in older

adults' lives, so professionals should implement a compelling approach to encourage older adults to actively participate in various physical activity programs, in addition to relaxed leisure activities.

Additionally, older adults are encouraged to engage in eudaimonic behaviors in order to promote well-being in their daily lives. While eudaimonic behaviors consist of achieving each individual's inherently meaningful pursuits, professionals could assist them in getting involved in and maintain these behaviors through arousing the importance of eudaimonic life at a community-level. Providing an opportunity to interact with others in regard to eudaimonic life could be arranged by professionals in a community. Having interactive communication with regard to Eudaimonia at the community-level can facilitate a positive atmosphere of pursuing eudaimonic lives for older adults. Older adults can exchange their personal experiences of eudaimonic behaviors and how involvement in eudaimonic activities has positively influenced their daily lives and well-being. City government or local community centers can help older adults continue to be involved in eudaimonic lives by arranging small group meetings or informal organizations, which make older adults aware of the importance of eudaimonic life.

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APPENDIX A

THE BIG FIVE INVENTORY (BFI)

Here are a number of characteristics that may or may not apply to you. For example, do you agree that you are someone who likes to spend time with others? Please write a number next to each statement to indicate the extent to which you agree or disagree with that statement.

Disagree
strongly

1

Disagree
a little

2

Neither agree
nor disagree

3

Agree
a little

4

Agree
Strongly

5

I see Myself as Someone Who...

____1. Is talkative

____23. Tends to be lazy

____2. Tends to find fault with others

____24. Is emotionally stable, not easily upset

____3. Does a thorough job

____25. Is inventive

____4. Is depressed, blue

____26. Has an assertive personality

____5. Is original, comes up with new ideas

____27. Can be cold and aloof

____6. Is reserved

____28. Perseveres until the task is finished

____7. Is helpful and unselfish with others

____29. Can be moody

____8. Can be somewhat careless

____30. Values artistic, aesthetic experiences

- | | |
|------------------------------------------------|-------------------------------------------------------|
| ____9. Is relaxed, handles stress well | ____31. Is sometimes shy, inhibited |
| ____10. Is curious about many different things | ____32. Is considerate and kind to almost everyone |
| ____11. Is full of energy | ____33. Does things efficiently |
| ____12. Starts quarrels with others | ____34. Remains calm in tense situations |
| ____13. Is a reliable worker | ____35. Prefers work that is routine |
| ____14. Can be tense | ____36. Is outgoing, sociable |
| ____15. Is ingenious, a deep thinker | ____37. Is sometimes rude to others |
| ____16. Generates a lot of enthusiasm | ____38. Makes plans and follows through with them |
| ____17. Has a forgiving nature | ____39. Gets nervous easily |
| ____18. Tends to be disorganized | ____40. Likes to reflect, play with ideas |
| ____19. Worries a lot | ____41. Has few artistic interests |
| ____20. Has an active imagination | ____42. Likes to cooperate with others |
| ____21. Tends to be quiet | ____43. Is easily distracted |
| ____22. Is generally trusting | ____44. Is sophisticated in art, music, or literature |

APPENDIX B

THE GERIATRIC DEPRESSION SCALE SHORT FORM (GDS-SF)

Choose the best answer for how you have felt over the past week:

1. Are you basically satisfied with your life? YES / NO
2. Have you dropped many of your activities and interests? YES / NO
3. Do you feel that your life is empty? YES / NO
4. Do you often get bored? YES / NO
5. Are you in good spirits most of the time? YES / NO
6. Are you afraid that something bad is going to happen to you? YES / NO
7. Do you feel happy most of the time? YES / NO
8. Do you often feel helpless? YES / NO
9. Do you prefer to stay at home, rather than going out and doing new things? YES / NO
10. Do you feel you have more problems with memory than most? YES / NO
11. Do you think it is wonderful to be alive now? YES / NO
12. Do you feel pretty worthless the way you are now? YES / NO
13. Do you feel full of energy? YES / NO
14. Do you feel that your situation is hopeless? YES / NO
15. Do you think that most people are better off than you are? YES / NO

APPENDIX C

Stanford Brief Activity Survey

TABLE 1. Stanford Brief Activity Survey of on-the-job activity



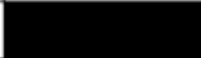



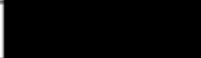



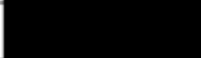


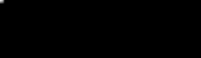






-
- | | |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A. <input type="checkbox"/> | If you have no job or regular work, check box A and go on to Appendix table 2. |
| B. <input type="checkbox"/> | I spent most of the day sitting or standing. When I was at work, I did such things as writing, typing, talking on the telephone, assembling small parts, or operating a machine that takes very little exertion or strength. If I drove a car or truck while at work, I did not lift or carry anything for more than a few minutes each day. |
| C. <input type="checkbox"/> | I spent most of the day walking or using my hands and arms in work that required moderate exertion. When I was at work, I did such things as delivering mail, patrolling on guard duty, doing mechanical work on automobiles or other large machines, house painting, or operating a machine that requires some moderate-activity work of me. If I drove a truck or lift, my job required me to lift and carry things frequently. |
| D. <input type="checkbox"/> | I spent most of the day lifting or carrying heavy objects or moving most of my body in some other way. When I was at work, I did such things as stacking cargo or inventory, handling parts or materials, or doing work like that of a carpenter who builds structures or a gardener who does most of the work without machines. |
| E. <input type="checkbox"/> | I spent most of the day doing hard physical labor. When I was at work, I did such things as digging or chopping with heavy tools or carrying heavy loads (bricks, for example) to the place where they were to be used. If I drove a truck or operated equipment, my job also required me to do hard physical work most of the day with only short breaks. |
-

TABLE 2. Stanford Brief Activity Survey of leisure-time activity

-
- | | |
|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| F. <input type="checkbox"/> | Most of my leisure time was spent without very much physical activity. I mostly did things like watching television, reading, or playing cards. If I did anything else, it was likely to be light chores around the house or yard or some easy-going game like bowling or catch. Only occasionally, no more than once or twice a month, did I do anything more vigorous, like jogging, playing tennis, or active gardening. |
| G. <input type="checkbox"/> | Weekdays, when I got home from work, I did few active things, but most weekends I was able to get outdoors for some light exercise - going for walks, playing a round of golf (without motorized carts), or doing some active chores around the house. |
| H. <input type="checkbox"/> | Three times per week, on average, I engaged in some moderate activity, such as brisk walking or slow jogging, swimming, or riding a bike for 15-20 minutes or more, or I spent 45 minutes to an hour or more doing moderately difficult chores, such as raking or washing windows, mowing the lawn or vacuuming, or playing games such as doubles tennis or basketball. |
| I. <input type="checkbox"/> | During my leisure time over the past year, I engaged in a regular program of physical fitness involving some kind of heavy physical activity at least three times per week. Examples of heavy physical activity are jogging, running, or riding fast on a bicycle for 30 minutes or more; heavy gardening or other chores for an hour or more; active games or sports such as handball or tennis for an hour or more; or a regular program involving calisthenics and jogging or the equivalent for 30 minute or more. |
| J. <input type="checkbox"/> | Over the past year, I engaged in a regular program of physical fitness along the lines described in the last paragraph (I), but I did it almost daily-five or more times per week. |
-

APPENDIX D

Illustration of Scoring in the Stanford Brief Activity Survey

		Leisure-time activity (F-J)				
On-the-job activity (A-E)		F	G	H	I	J
	A					
	B					
	C					
	D					
	E					

Activity categories are represented by different patterns, as follows: inactive= vertical lines, light-intensity activity= trellis pattern, moderate-intensity activity= solid white, hard-intensity activity= solid black and very hard-intensity activity= horizontal lines.

APPENDIX E

EXPERIENCE SAMPLING FORM

Experience Sampling Form

Date & Time this form was filled out: _____

What were you doing before you were signaled?

Why were you doing the activity?

What were you thinking about?

Where were you?

Who were with you?

Describe how you felt just before the signaling?

	Not at all					Very much	
Discouraged	1	2	3	4	5	6	7
Happy	1	2	3	4	5	6	7
Sad	1	2	3	4	5	6	7
Cheerful	1	2	3	4	5	6	7
Hopeless	1	2	3	4	5	6	7
Friendly	1	2	3	4	5	6	7
Unmotivated	1	2	3	4	5	6	7
Sociable	1	2	3	4	5	6	7
Disinterested	1	2	3	4	5	6	7
Confident	1	2	3	4	5	6	7
Competent	1	2	3	4	5	6	7
Satisfied	1	2	3	4	5	6	7
Successful	1	2	3	4	5	6	7
Proud	1	2	3	4	5	6	7

Please describe what you were doing just before you heard the signal.

	Not at all					Very much	
I was learning something that is interesting to me	1	2	3	4	5	6	7
I was using my creativity	1	2	3	4	5	6	7
I was solving a problem	1	2	3	4	5	6	7
I was doing something that helps me build or maintain a friendship	1	2	3	4	5	6	7
I was doing something that will likely help make me be a better person	1	2	3	4	5	6	7
I was in a state of effortless concentration so deep that I lost a) my sense of time, b) my thoughts about myself, and c) my thoughts about my problems. I wanted very much to keep doing this activity	1	2	3	4	5	6	7
I was doing something that I deeply enjoy and want to do; it is who I really am and what I am meant to do	1	2	3	4	5	6	7